

Chapter Six: Future System Analysis

This chapter identifies options available to address deficiencies within the Utah Airport System. The analysis focuses on the performance of each evaluation measurement summarized in the previous chapter and presents available options to improve the performance of the system. The impact of outside influences that could affect the future airport system is also considered.

The responsibility for implementing projects and following recommendations identified in the UCASP remains with local airport owners and sponsors in coordination with the UDOA and FAA. It is possible that local constraints (community, financial, physical, or environmental) may make it impossible for individual airports to meet all targets outlined in this portion of the UCASP. Final UCASP recommendations will be a blend of airport initiatives and system needs. Individual airport recommendations and costs are presented in the next chapter of the UCASP.

OUTSIDE INFLUENCES

The demand for airports and aviation services is influenced by many factors, both aviation and non-aviation related. The primary non-aviation factors influencing aviation demand in Utah include:

- Population
- Employment
- Tourism
- Retirement\Second Home Development
- Energy Exploration
- Surface Transportation Improvements

The following sections discuss the potential impacts of each factor and identify the airports most likely to be affected.

Population

Population growth in Utah is projected to occur primarily in established cities and towns along the I-15 corridor. The highest growth rates are projected to occur along the Wasatch Front and in the southwest area of the state. **Table 6-1** presents the top 10 counties in Utah projected to experience the greatest overall population growth. System airports located in each county are also identified. Airports located in these counties are more likely to experience higher levels of demand for aviation services based on the growth in population. Salt Lake County is projected to experience the greatest population increase in Utah, adding over 328,000 additional residents by the year 2025.

Table 6-1
Airports in Counties with the Highest Projected
Overall Population Growth

County	Projected 2005 - 2025 Total Population Growth	Airports
Salt Lake	328,151	Salt Lake City International, Salt Lake City Municipal #2
Utah	283,018	Provo Municipal, Spanish Fork Springville, Jake Garn
Washington	176,085	St. George Municipal, Hurricane
Davis	94,917	Skypark
Weber	74,940	Ogden Hinckley
Cache	62,782	Logan-Cache
Tooele	49,860	Tooele Valley, Wendover
Summit	38,051	None
Iron	30,125	Cedar City, Parowan
Box Elder	21,697	Brigham City

Source: Governor's Office of Planning and Budget - 2005 Baseline Projections, Wilbur Smith Associates

Employment

Employment growth is expected to mirror population growth in Utah. Similar to population growth, employment growth will also occur primarily in established cities with the largest increases occurring in the northern and southwestern portions of the state. **Table 6-2** identifies the counties in Utah projected to experience the greatest overall employment growth between 2005 and 2025. Salt Lake County is projected to experience the greatest overall increase in employment adding over 320,000 new jobs by the year 2025.

Table 6-2
Airports in Counties with the Highest Projected Overall Employment Growth

County	Projected 2005 - 2025 Total Employment Growth	Airports
Salt Lake	320,300	Salt Lake City International, Salt Lake City Municipal #2
Utah	164,121	Provo Municipal, Spanish Fork Springville, Jake Garn
Washington	80,691	St. George Municipal, Hurricane
Weber	48,964	Ogden Hinckley
Davis	46,118	Skypark
Cache	44,453	Logan-Cache
Iron	16,914	Cedar City, Parowan
Summit	16,634	None
Box Elder	11,930	Brigham City
Tooele	8,751	Tooele Valley, Wendover

Source: Governor's Office of Planning and Budget - 2005 Baseline Projections, Wilbur Smith Associates

Tourism

Demand at many of the state's airports is influenced by tourism activity. Salt Lake City International and St. George Municipal airports serve the greatest numbers of tourism related visitors who arrive via scheduled commercial air service to the State of Utah. The Wendover Airport also serves a significant number of tourism related visitors traveling on chartered flights to casinos in Wendover, Nevada. In 2005 the Wendover Airport recorded over 23,000 passenger enplanements. Since that time, the number of passenger enplanements at the Wendover Airport has continued to grow. This growth is expected to continue with the development of a new casino, expanded entertainment opportunities and the addition of new charter flights.

Salt Lake City International and St. George Municipal airports also serve a significant number of tourism related visitors who arrive via general aviation aircraft. Other airports servicing higher numbers of tourism related visitors arriving by general aviation aircraft include: Ogden Hinckley, Provo Municipal, Heber, Wendover, Moab, Cedar City, and Bryce Canyon. In the future, resorts proposed near the Beaver and Kanab airports have the potential to significantly increase the number of tourism related visitors arriving by general aviation at these airports.

Retirement\Second Home Development

As increasing numbers of "baby boomers" retire, development of retirement and second homes is increasing throughout the United States. In Utah, the mountainous areas east of Salt Lake and the St. George area have experienced increased housing development that is partially attributable to the development of retirement and second homes. This activity has increased demand for aviation services at the Salt Lake City International, Heber, St. George and Hurricane airports. Future development of retirement and second homes is expected to increase demand at several additional airports including: Beaver, Cedar City, Heber, Kanab and Ogden.

Energy Exploration

Increases in the cost of energy have caused an increase in energy exploration activities in Utah, as well as an increase in aviation activity related to energy exploration. Aviation demand related to energy exploration was studied to determine if Utah's airport system is capable of accommodating current and future demand for aviation facilities and service. The Vernal, Price and Richfield airports currently serve the majority of energy exploration related aviation activity. These airports are projected to continue serving this activity with other airports in the state receiving limited activity related to energy exploration.

Surface Transportation Improvements

Planned surface transportation improvements will impact the state's overall transportation infrastructure and could result in changes in demand for aviation facilities

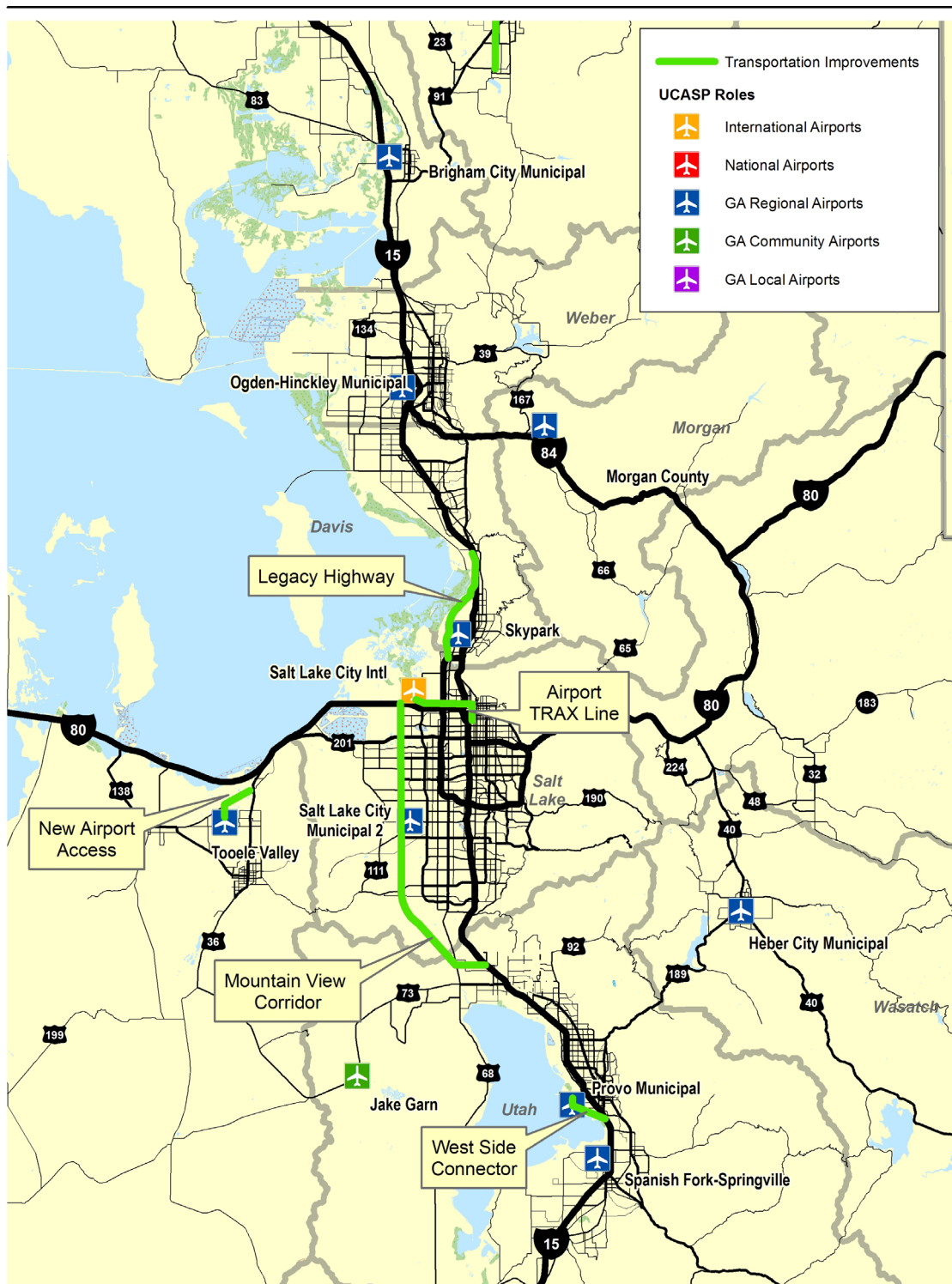
and services. The following figures depict areas of the state in which future significant roadway and transit improvement projects are planned. These projects were identified in Utah Department of Transportation's (UDOT) Statewide Transportation Improvement Program (STIP) and Metropolitan Planning Organization's (MPO's) Long Range Plans. The types of roadway projects included are projects that may significantly impact nearby airports, such as the construction of new roads or high capacity transit systems.

Exhibit 6-1 depicts the Wasatch Front Region's airports and future significant transportation projects. The region includes Weber, Davis, Salt Lake, Tooele, and Utah Counties. The following planned surface transportation projects have the potential to impact demand at airports in this region.

- Mountain View Corridor is a planned 6 to 8-lane freeway that will run north/south on the western side of Salt Lake County from I-80 connecting with I-15 in Utah County. Between I-80 and approximately 10600 South this corridor is expected to run along 5800 West. After 10600 South the corridor heads southeast connecting with I-15 in the City of Lehi. This roadway will be classified as a major arterial, and will significantly increase mobility on the western side of Salt Lake County and the northwestern portion of Utah County. Salt Lake City Municipal Airport # 2 is located between 6200 South and 7800 South and between approximately 3900 West and 4500 West. Mountain View Corridor will run approximately 13 blocks west of the Salt Lake City Municipal Airport # 2 and will increase access to the airport from both western Salt Lake and northern Utah Counties. This corridor also increases access to Saratoga Springs and Eagle Mountain in northwest Utah County, and will improve access to the Jake Garn Airport.
- Legacy Parkway is a four-lane highway currently under construction in northern Salt Lake County and southern Davis County. This highway makes a connection between the northwest portion of I-215 in Salt Lake County and I-15 near Farmington in Davis County. Legacy Parkway will provide an alternative to I-15 through this area and will improve traffic flow for commuters. Skypark Airport is located at approximately 2600 South and Redwood Road in Woods Cross. Legacy Parkway will run directly west of the airport, and will improve access to Skypark Airport especially during peak traffic periods when I-15 is heavily congested.

Salt Lake International Airport is located approximately two miles south of where this highway connects with I-215 in northern Salt Lake County. Legacy Parkway will likely improve access to Salt Lake International Airport for residents of northern Utah and southern Idaho.

Exhibit 6-1 Wasatch Front Area Future Transportation Improvements Affecting Airports



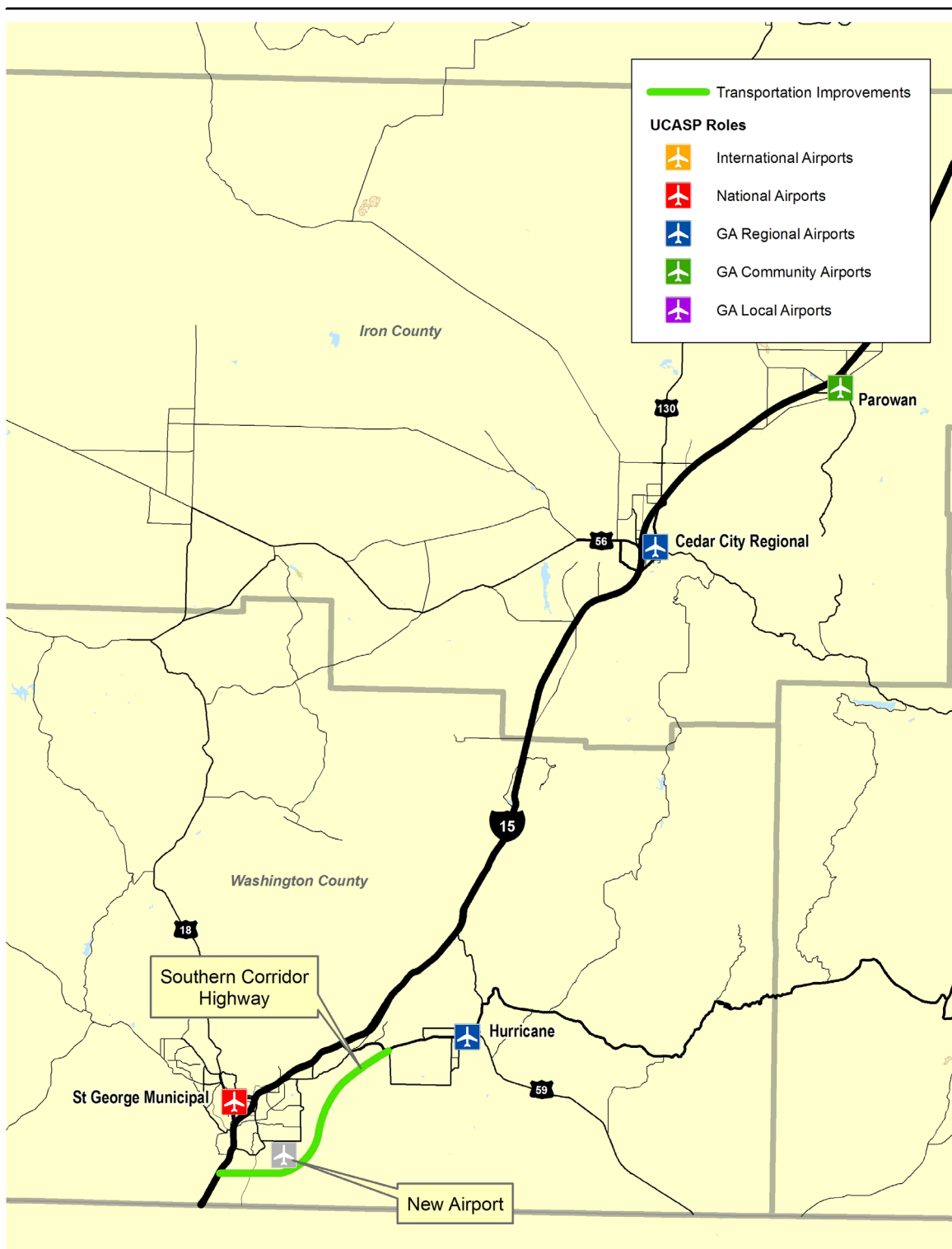
Source: UDOA, Wilbur Smith Associates, 2007

- A Light Rail Transit (LRT) line is currently being studied by the Utah Transit Authority to connect Downtown Salt Lake City and Salt Lake International Airport. This Downtown-Airport LRT Line will connect with other regional LRT lines, local bus routes, and commuter rail. This will allow more people to arrive and depart from the airport by transit rather than automobile, possibly resulting in a decrease in demand for rental cars and parking at the airport.
- Access to the Tooele Valley Airport is planned for improvement. Tooele Valley Airport currently has one access point to the south from a local road, Erda Way. The airport master plan indicates a new access to the north from Highway 138. This connection will increase access to the airport from a more highly utilized road and slightly decrease the travel time from the Salt Lake Valley.
- The proposed Westside Connector in Utah County is a four-lane road that will connect I-15 at University Avenue to Provo Municipal Airport. This highway will connect with I-15 in Provo at the University Avenue interchange and travel west and slightly north until it reaches Mike Jensen Parkway, the main access road to the Provo Municipal Airport. Currently, the primary access to Provo Municipal Airport is from Center Street in Provo, a two-lane road traveling through a residential neighborhood. The Westside Connector will provide access to the airport, and possibly facilitate new business development opportunities near the airport.

Exhibit 6-2 depicts the St. George area in southern Utah and the location of the replacement St. George Municipal Airport and the existing Hurricane Airport. The following is a description of a roadway improvement planned in the area that will affect the region's airports.

- UDOT's STIP and the Dixie MPO's Long Range Plan identify construction of the Southern Parkway southeast of St. George. The parkway will be a major corridor wrapping around the south and east sides of the new St. George airport. The road will begin at the southern end of St. George at I-15 and head east past the future St. George airport. The corridor will then head north and west until it meets with Highway 9 in Hurricane. This new corridor will mostly likely provide the main access to the new airport and provide ample opportunities for business development near the airport. This corridor will also increase the ease of access to Hurricane Airport by connecting St. George to Hurricane with an alternative to I-15.

Exhibit 6-2 St. George Area Future Roadway Improvements Affecting Airports



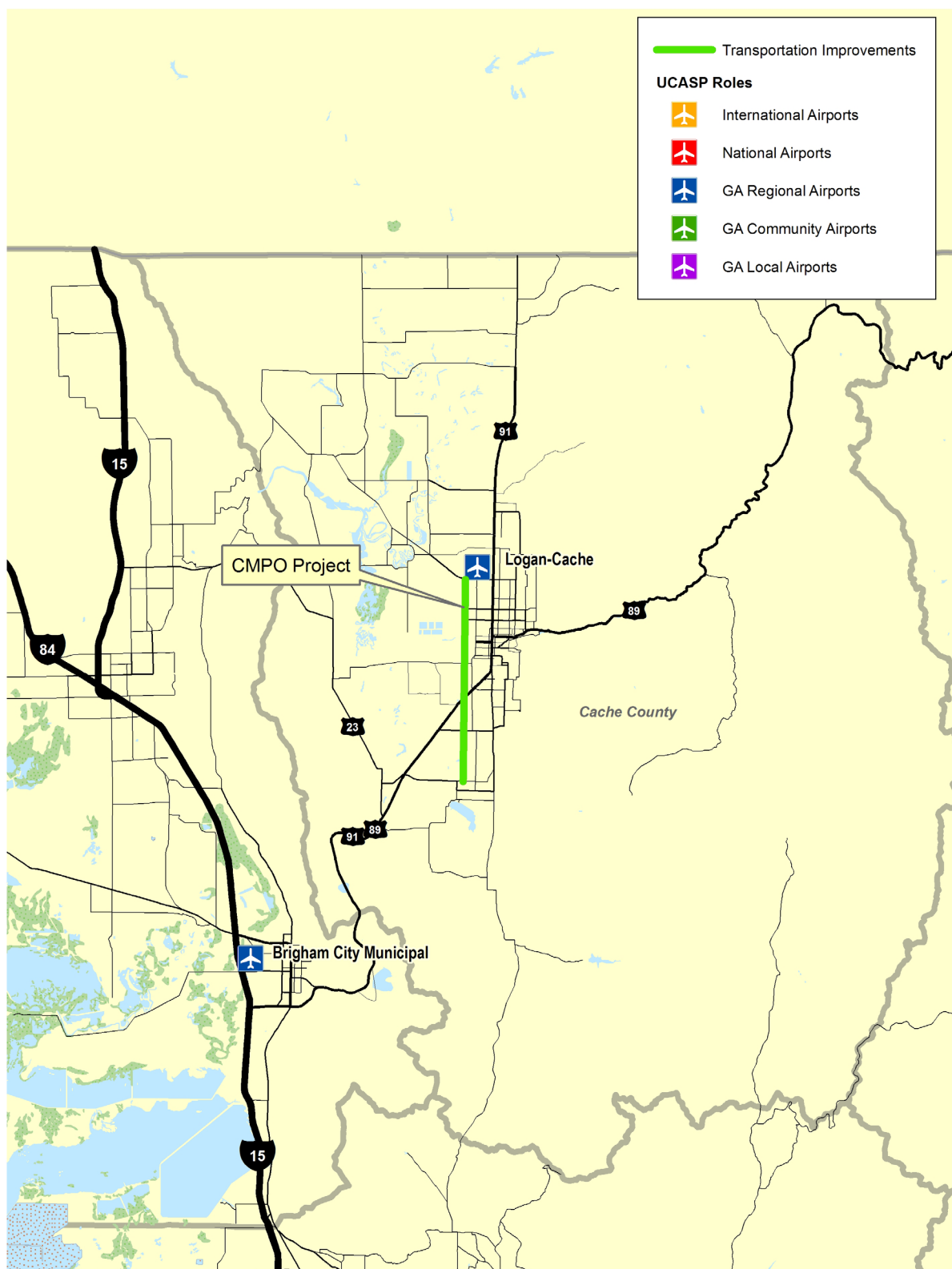
Source: UDOA, Wilbur Smith Associates, 2007

Exhibit 6-3 shows the Cache Valley area in the northeast portion of Utah. The following is a description of a roadway improvement planned in the area that may affect the Logan Airport.

- Westside Route is a planned roadway providing an additional four-lane north/south arterial to the Cache Valley. The route will begin in Nibley at State Road 101 at approximately 1400 West, crossing over Highway 89/91 and continuing north to Airport Road in North Logan. The alignment will follow approximately 1000 West after crossing US Highway 89/91. This road will relieve the heavy traffic volume on highway 89/91 through the Cache Valley, and will serve as a bypass to downtown Logan City creating a faster connection directly to the Logan airport from the south.

Projected growth and transportation improvements have the potential to alter future aviation needs of the state. As areas grow, airport needs may also increase. Transportation improvements provide an opportunity for additional increases in population, as travel times are reduced and currently underutilized properties present new development opportunities. The new transportation facilities discussed above indicate prime locations for growth in population and in airport service area demands.

Exhibit 6-3 Cache Valley Area Future Roadway Improvements Affecting Airports



Source: UDOA, Wilbur Smith Associates, 2007

SYSTEM EVALUATION

Current classifications for airports in Utah, identified in Chapter Three, provide a baseline for evaluating the adequacy of the existing airport system. The following system evaluation indicates the Utah Airport System's adequacy in meeting the state's near and long-term aviation needs. This evaluation provides the foundation for subsequent recommendations for the Utah Airport System and individual system airports. Some performance measures used to evaluate Utah's Airport System are objective, while others are more subjective in nature. The three goal categories established to evaluate the system and considered in this chapter include:

- Activity Served
- Economic Support
- Facilities and Accessibility

The performance measures within each of these goal categories were used to evaluate the overall performance related to that goal. Each performance measure is described below in terms of existing performance. If improvement in the performance measure is needed, a specific recommendation is provided.

GOAL CATEGORY: ACTIVITY SERVED

The intention of this goal category and the related performance measures is to develop a system of airports having adequate facilities and services to serve the existing and projected levels of aviation activity or demand.

Percent of Utah's population having access to scheduled commercial air service

It is generally desirable for most, if not all, of a state's population to be within a reasonable drive of a commercial service airport. The drive times used to examine the coverage provided by the Utah system of airports consisted of a 90-minute drive time for Salt Lake City International and 60-minute drive times for all other commercial service airports. Scheduled commercial airline service within Utah is provided at Salt Lake City International, St. George Municipal, Cedar City, Moab-Canyonlands, and Vernal airports. Currently over 95 percent of Utah's population has reasonable access to commercial air service, while 35 percent of the land area within the state is contained within the drive time coverage provided by these airports.

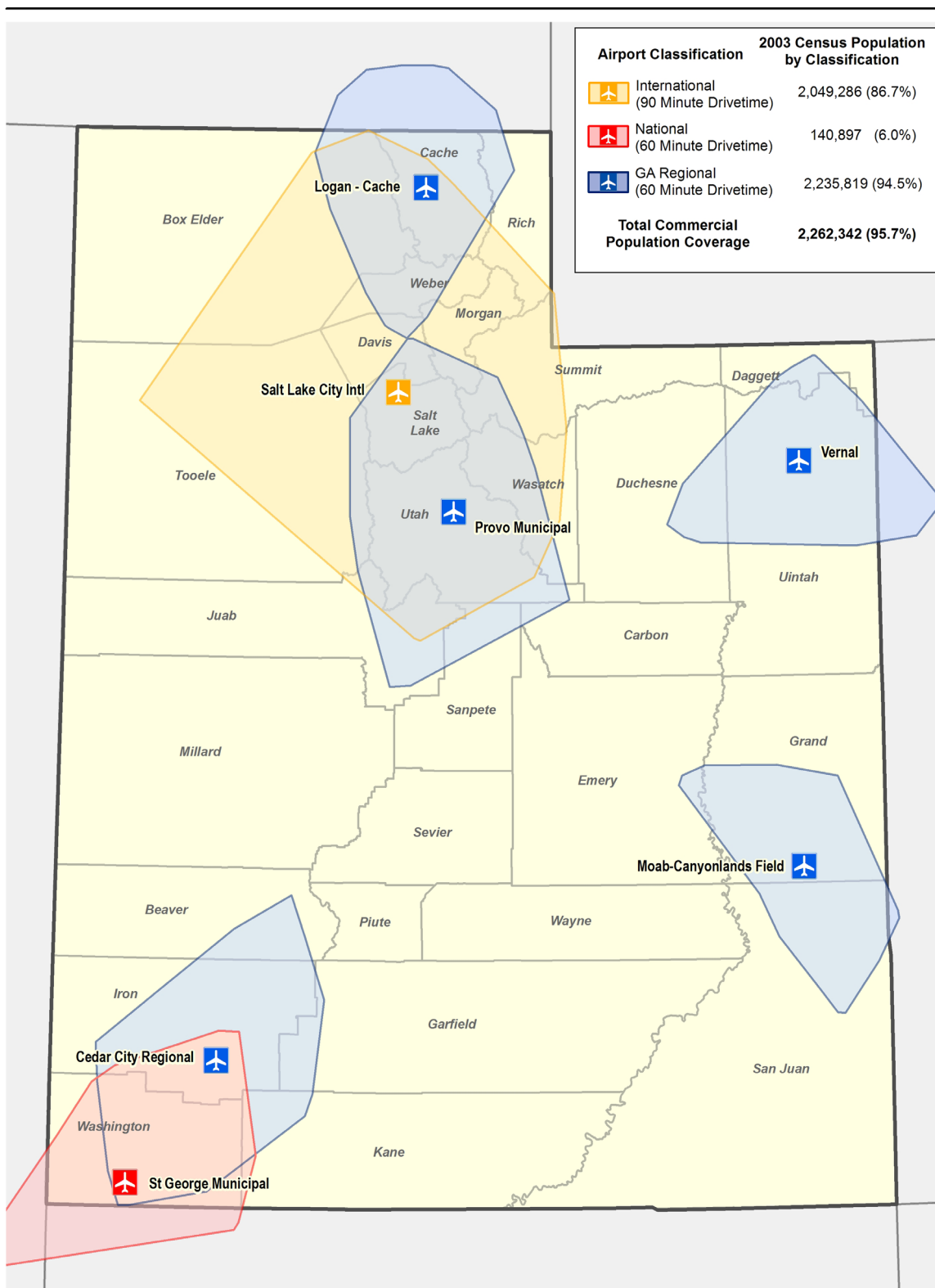
With the majority of population and employment growth projected to occur in areas currently served by scheduled commercial service airports, the percent of Utah's population with access to commercial service is anticipated to increase over time. Additionally, the possibility exists for new scheduled commercial service to be provided

at some Utah system airports, most notably the Logan-Cache and Provo Municipal Airports. However, due to the proximity of these two airports to Salt Lake City International the additional population coverage provided by these two airports is minimal as shown in **Exhibit 6-4**. The coverage provided by the Logan-Cache and Provo Municipal airports combined would serve an additional 0.2 percent of Utah's population.

It is important to note that commercial airline service at Cedar City, Moab-Canyonlands, and Vernal is supported by federal operating subsidies through the Essential Air Service (EAS) program. The existing coverage provided by Utah's five commercial service airports that are within reasonable access to Utah residents is considered to be adequate. The future of access to commercial service airports would likely change only if EAS subsidies were eliminated and airline service is no longer subsidized. Without subsidization, Cedar City, Moab and Vernal might lose commercial airline service, reducing the commercial service coverage provided to approximately 93 percent of Utah's population.

It is recommended that the EAS program be continued and supported by the State of Utah to ensure commercial airline service continues to be provided at Utah's three EAS airports. The EAS program continues to be at risk of being reduced or eliminated at the national level due to funding issues.

Exhibit 6-4 Population with Access to Scheduled Commercial Air Service



Source: 2003, US Census

Percent of Utah's population having access to an airport with FAR Part 135 passenger aircraft charter service

Chapter Five of the UCASP identified 13 airports in the Utah system that currently have a passenger aircraft charter service provider based on-site. Approximately 82 percent of the state's population is within a 30-minute drive-time of one of these 13 airports. This analysis is presented primarily for informational purposes as state officials and airport sponsors have limited influence over an aircraft charter operator's choice to operate or locate at a particular airport. Future growth or decline in this service will be primarily influenced by changes in population and specific economic conditions that give rise to this service.

Airports accommodating Instrument Flight Rule (IFR) operations from outside Utah

The previous chapter identified the number of IFR flight plans filed to airports in Utah from outside the state. This analysis provided an indication as to which airports in Utah provide the greatest contribution to the national air transportation system. This analysis also indicates where demand for instrument approach procedures exists at system airports. **Table 6-3** presents the number of IFR flight plans filed in 2006 to Utah system airports without instrument approach procedures. Facility and service objectives identified in Chapter Four recommend that airports in the Regional and Community roles have an instrument approach procedure, if possible. While development of instrument approach procedures is not feasible or practical at all system airports, priority in developing new instrument approach procedures should be given to airports with higher numbers of filed IFR flight plans.

Table 6-3
2006 IFR Flight Plans Filed to Airports with Visual Approaches

Associated City	Airport	UCASP Classification	2006 IFR Flight Plans Filed
Bountiful	Skypark	Regional	250
Spanish Fork	Spanish Fork-Springville	Regional	201
Bryce Canyon	Bryce Canyon	Community	69
Monticello	Monticello	Community	51
Panguitch	Panguitch Municipal	Community	42
Halls Crossing	Halls Crossing	Local	35
Loa	Wayne Wonderland	Local	34
Beaver	Beaver Municipal	Community	32
Glen Canyon Natl. Rec. Area	Bullfrog Basin	Local	23
Green River	Green River	Community	15
Parowan	Parowan	Community	13
Dutch John	Dutch John	Local	12
Fillmore	Fillmore	Community	8
Nephi	Nephi Municipal	Regional	5
Hanksville	Hanksville	Local	5
Hurricane	Hurricane	Regional	4
Morgan	Morgan County	Regional	4
Manti	Manti-Ephraim	Community	4
Escalante	Escalante Municipal	Community	3
Salina	Salina-Gunnison	Local	3
Junction	Junction	Local	2
Bluff	Bluff	Local	1
Manila	Manila	Local	1
Mount Pleasant	Mount Pleasant	Local	1

Source: GCR & Associates, Wilbur Smith Associates, 2007

Airports accommodating emergency medical flights in Utah

The previous chapter identified system airports currently accommodating fixed wing emergency medical flights and the basic airport facility requirements necessary to accommodate these operations. The requirements include a runway length of at least 4,000 feet, runway lighting and an instrument approach procedure. **Table 6-4** identifies where requirements are currently being met and where projects have been recommended to meet the requirements in the future. These recommendations are based the facility and service objectives for each UCASP airport category.

Table 6-4
Airports Meeting Requirements to Support Emergency Medical Flights in Utah

		> 4,000' Runway Length	Runway Lighting	Instrument Approach Procedure
Associated City	Airport			
International Airports				
*Salt Lake City	Salt Lake City International	✓	✓	✓
National Airports				
*St. George	St. George Municipal	✓	✓	✓
*Wendover	Wendover	✓	✓	✓
Regional Airports				
Bountiful	Skypark	✓	✓	
Brigham City	Brigham City Municipal	✓	✓	✓
*Cedar City	Cedar City Regional	✓	✓	✓
Heber	Heber City Municipal	✓	✓	✓
Hurricane	Hurricane	R		
*Logan	Logan-Cache	✓	✓	✓
*Kanab	Kanab Municipal	✓	✓	✓
*Moab	Moab-Canyonlands Field	✓	✓	✓
Morgan	Morgan County			
Nephi	Nephi Municipal	✓	✓	R
*Ogden	Ogden-Hinckley Municipal	✓	✓	✓
*Price	Price-Carbon County	✓	✓	✓
Provo	Provo Municipal	✓	✓	✓
*Richfield	Richfield Municipal	✓	✓	✓
Salt Lake City	Salt Lake City Muni 2	✓	✓	✓
Spanish Fork	Spanish Fork-Springville	✓	✓	R
Tooele	Tooele Valley Airport	✓	✓	✓
*Vernal	Vernal	✓	✓	✓
Community Airports				
*Beaver	Beaver Municipal	✓	✓	R
*Blanding	Blanding Municipal	✓	✓	✓
Bryce Canyon	Bryce Canyon	✓	✓	R
*Delta	Delta Municipal	✓	✓	✓
Eagle Mountain	Jake Garn	R	R	R
Escalante	Escalante Municipal	✓	✓	R
*Fillmore	Fillmore	✓	✓	R
*Green River	Green River	✓	✓	R
Manti	Manti-Ephraim	✓	✓	R
Milford	Milford Municipal	✓	✓	✓
Monticello	Monticello	✓	✓	R
Panguitch	Panguitch Municipal	✓	✓	R
Parowan	Parowan	✓	✓	R
Roosevelt	Roosevelt Municipal	✓	✓	✓

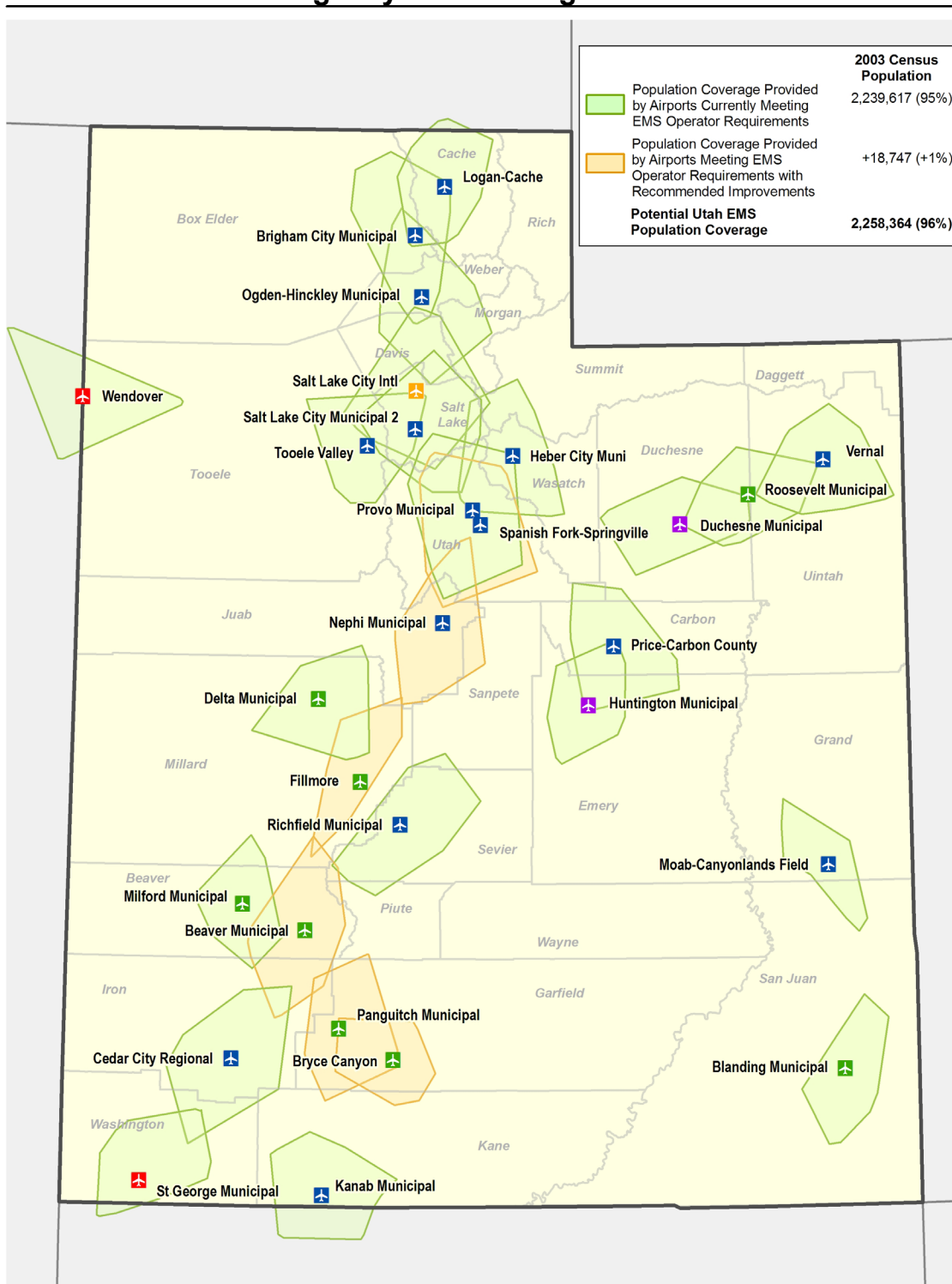
Table 6-4, Continued
Airports Meeting Requirements to Support Emergency Medical Flights in Utah

		> 4,000' Runway Length	Runway Lighting	Instrument Approach Procedure
Associated City	Airport			
Local Airports				
Bluff	Bluff Airport			
Duchesne	Duchesne Municipal	✓	✓	✓
Dutch John	Dutch John	✓		
Glen Canyon Natl. Rec. Area	Bullfrog Basin			
Halls Crossing	Halls Crossing	✓	✓	
Hanksville	Hanksville	✓	✓	
Huntington	Huntington Municipal	✓	✓	✓
Junction	Junction	✓		
Loa	Wayne Wonderland	✓	✓	
Manila	Manila	✓	✓	
Mount Pleasant	Mount Pleasant	✓	✓	
Salina	Salina-Gunnison		✓	
✓ - Meets Requirement R – UCASP Recommended Improvement * - Airport used by AirMed or LifeFlight fixed wing aircraft in 2006				

Source: UDOA, Wilbur Smith Associates, 2007

Exhibit 6-5 identifies the system airports that currently meet basic emergency medical service (EMS) operator requirements as well as airports meeting the requirements with recommended improvements. Currently, 22 of the 47 system airports met these requirements providing coverage within a 30-minute drive time to 95 percent of Utah's population. With recommended improvements, an additional 12 airports will meet EMS operator requirements, thus increasing the population coverage to 96 percent of Utah's population.

Exhibit 6-5 Airports Meeting Requirements to Support Emergency Medical Flights in Utah



Source: US Census 2003, Wilbur Smith Associates, UDOA

GOAL CATEGORY: ECONOMIC SUPPORT

Air transportation is important to Utah's economic performance. Employers throughout the nation consider the existence and efficiency of air transportation facilities when expanding or developing in a given geographic area. In addition, airport market areas must possess other characteristics that make them candidates for the retention and attraction of various economic and development activities.

Business aviation is one of the fastest growing portions of general aviation. Business aviation consists of companies and individuals using aircraft as tools to support their business. According to the National Business Aviation Association (NBAA), companies are rapidly becoming more dependent on general aviation to conduct business efficiently. Business aviation not only supports the economic vitality of individual companies, but also the state as a whole. In order to support growing business-related aviation activity in the state, it is important that a reasonable number of Utah airports be able to support larger, more sophisticated business jet aircraft. For this goal category, several factors are indicators of an airport's ability to support business aircraft and thus support Utah's economy.

Location of significant tourism destinations in relation to Utah airports

As identified in the previous chapter, demand for both commercial and general aviation services at many system airports is influenced by tourism related activity. Currently demand for aviation services at the Salt Lake City, Wendover, St. George, Moab, Bryce Canyon and Heber airports is influenced by tourism related activities. It is anticipated that tourism related demand at these airports will continue to grow in the future. Additionally, proposed development of upscale resorts near the Ogden, Beaver, and Kanab airports is anticipated to increase tourism related demand at these facilities. The UCASP recommends improvements at each of these airports to enable them to better serve tourism related visitors. These improvements will also enable these airports to better serve business and other types of airport users.

Location of oil and gas exploration and drilling activity in relation to Utah airports

As identified in the previous chapter, energy exploration has created increased demand at several Utah airports. The primary airports serving this industry are Vernal, Price and Richfield. Discussions with the Utah Division of Oil, Gas and Mining indicate that the Utah Airport System is currently providing an adequate level of service to the oil and gas industry. Furthermore, future growth within this industry is not expected to be significant enough to necessitate additional airport development beyond what is already planned. The Richfield Airport is currently in the process of upgrading to meet ARC C-II standards. This upgrade will provide an even higher level of service to the oil and gas industry operating in the Richfield area.

Percent of population with access to an airport supporting business jet operations

As identified in Chapter Five of the UCASP, 13 system airports are currently capable of fully accommodating large business jet aircraft. These airports have a runway length of at least 5,000 feet, pavement strength of at least 25,000 pounds Single Wheel Gear (SWG), jet fuel, and an instrument approach procedure. The 13 airports currently meeting these requirements provide coverage within a 30-minute drive time to approximately 90 percent of Utah's population. **Table 6-5** identifies the business jet requirements currently being met at system airports. Additionally the table identifies airport improvement projects that have been recommended related to these requirements. The recommendations are primarily based on the facility and service objectives identified for each airport classification. With recommended improvements, an additional nine system airports will be fully capable of accommodating business jet operations. **Exhibit 6-6** identifies the current population coverage provided by system airports meeting business jet requirements and those that will meet the requirements with recommended improvements. With the recommended improvements a total of 22 airports will be capable of accommodating business jet operations providing coverage within a 30-minute drive time to 99.7 percent of Utah's population.

Table 6-5
Airports Meeting Requirements to Accommodate Business Jet Operations

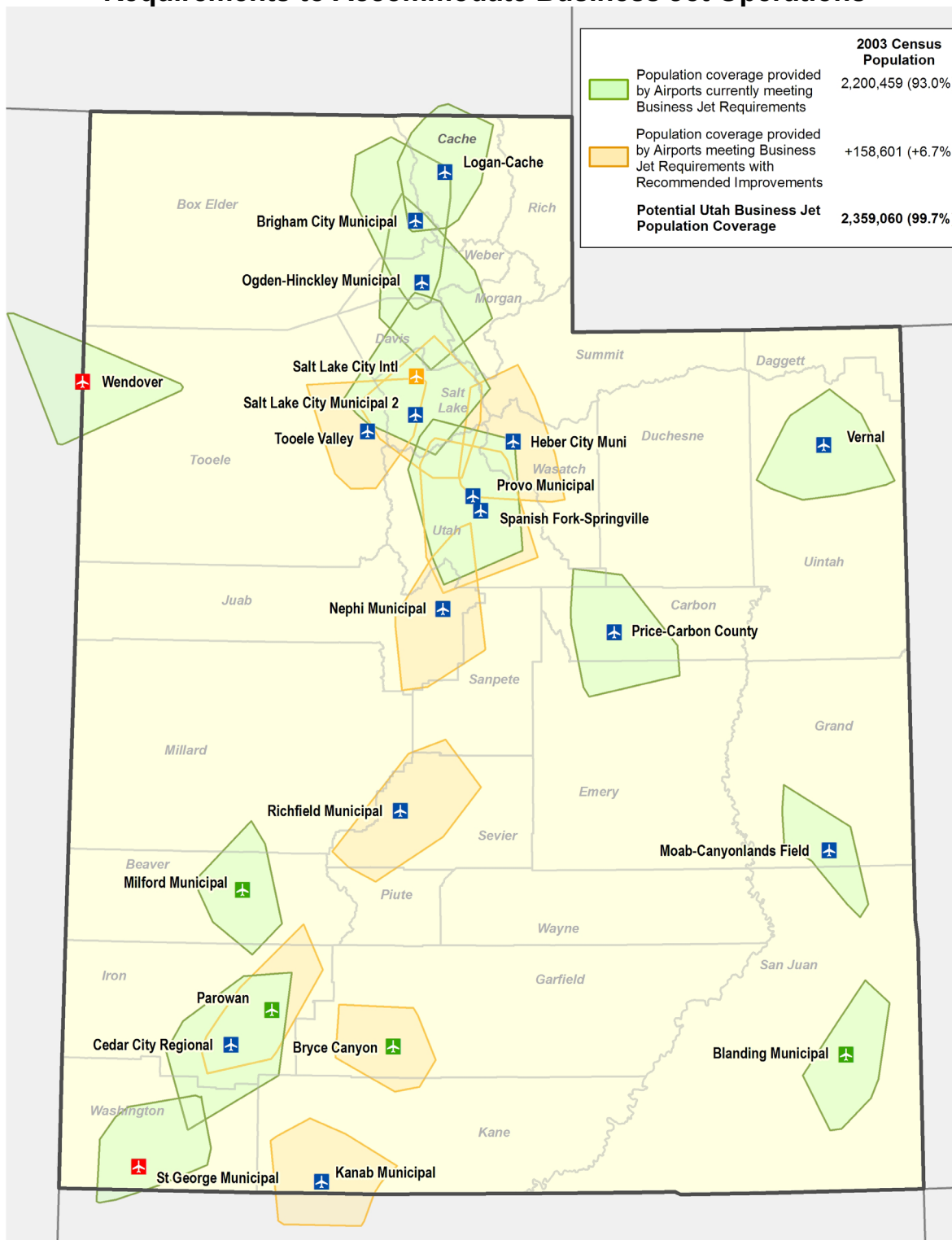
		> 5,000' Runway Length	> 25,000# SWG Runway Pavement Strength	Instrument Approach Procedure	Jet A Fuel
Associated City	Airport				
International Airports					
Salt Lake City	Salt Lake City Intl	✓	✓	✓	✓
National Airports					
St George	St George Municipal	✓	✓	✓	✓
Wendover	Wendover	✓	✓	✓	✓
Regional Airports					
Bountiful	Skypark				✓
Brigham City	Brigham City Municipal	✓	✓	✓	✓
Cedar City	Cedar City Regional	✓	✓	✓	✓
Heber	Heber City Muni	✓	R	✓	✓
Hurricane	Hurricane				✓
Kanab	Kanab Municipal	✓	R	✓	✓
Logan	Logan-Cache	✓	✓	✓	✓
Moab	Moab-Canyonlands Field	✓	✓	✓	✓
Morgan	Morgan County				R
Nephi	Nephi Municipal	✓	✓	R	✓
Ogden	Ogden-Hinckley Municipal	✓	✓	✓	✓
Price	Price-Carbon County	✓	✓	✓	✓
Provo	Provo Municipal	✓	✓	✓	✓
Richfield	Richfield Municipal	✓	R	✓	✓
Salt Lake City	Salt Lake City Muni 2	✓	R	✓	✓
Spanish Fork	Spanish Fork-Springville	✓	R	R	✓
Tooele	Tooele Valley Airport	✓	✓	✓	R
Vernal	Vernal	✓	✓	✓	✓
Community Airports					
Beaver	Beaver Municipal	✓		R	
Blanding	Blanding Municipal	✓	✓	✓	✓
Bryce Canyon	Bryce Canyon	✓	✓	R	✓
Delta	Delta Municipal	✓		✓	
Eagle Mountain	Jake Garn	R		R	
Escalante	Escalante Municipal	✓		R	
Fillmore	Fillmore	✓		R	
Green River	Green River	✓		R	✓
Manti	Manti-Ephraim			R	
Milford	Milford Municipal	✓	✓	✓	✓
Monticello	Monticello	R		R	✓
Panguitch	Panguitch Municipal	✓		R	
Parowan	Parowan	✓	✓	R	✓
Roosevelt	Roosevelt Municipal	✓		✓	✓

Table 6-5, Continued
Airports Meeting Requirements to Accommodate Business Jet Operations

		> 5,000' Runway Length	> 25,000# SWG Runway Pavement Strength	Instrument Approach Procedure	Jet A Fuel
Associated City	Airport				
Local Airports					
Bluff	Bluff Airport				
Duchesne	Duchesne Municipal	✓		✓	
Dutch John	Dutch John	✓			
Glen Canyon Natl. Rec. Area	Bullfrog Basin				
Halls Crossing	Halls Crossing	✓			✓
Hanksville	Hanksville	✓			
Huntington	Huntington Municipal			✓	
Junction	Junction				
Loa	Wayne Wonderland	✓			
Manila	Manila	✓	✓		
Mount Pleasant	Mount Pleasant				
Salina	Salina-Gunnison				
✓ - Meets Requirement R – UCASP Recommended Improvement					

Source: UDOA, Wilbur Smith Associates, 2007

Exhibit 6-6 Current and Future Airports Meeting Requirements to Accommodate Business Jet Operations



Source: US Census 2003, Wilbur Smith Associates

Percent of population within a 30-minute drive time of an airport capable of supporting VLJ operations

As identified in Chapter Five of the UCASP, the Utah Airport System currently has 12 airports that provide all of the facilities and services necessary to fully accommodate VLJ aircraft. These 12 airports provide coverage within a 30-minute drive time to approximately 93 percent of Utah's population. **Table 6-6** identifies the VLJ aircraft requirements currently being met at system airports, and recommended improvements that have been identified to support VLJ aircraft operations. The recommendations are primarily based on the facility and service objectives identified for each airport classification. With recommended improvements, an additional 13 system airports will be fully capable of accommodating VLJ aircraft operations. **Exhibit 6-7** identifies the current population coverage provided by system airports meeting VLJ aircraft requirements and those that will meet the requirements with recommended improvements. With the recommended improvements a total of 25 airports will be capable of accommodating VLJ aircraft operations providing coverage within a 30-minute drive time to 99.7 percent of Utah's population.

Table 6-6
Airports Meeting Requirements to Support VLJ Operations

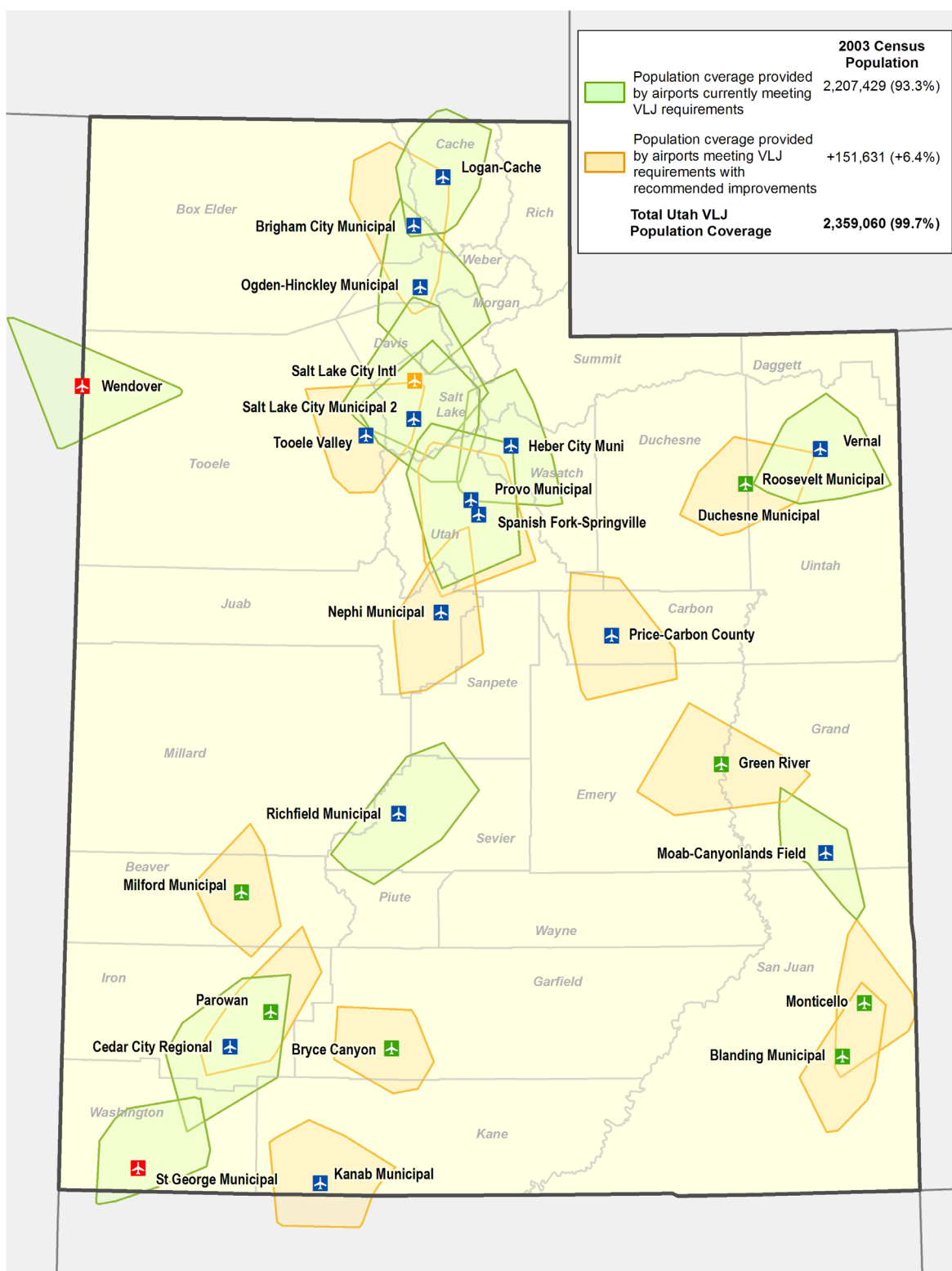
		> 4,000' Runway Length	Instrument Approach Procedure	Jet A Fuel	Rental/Courtesy Cars	Terminal/Pilots Lounge
Associated City	Airport					
International Airports						
Salt Lake City	Salt Lake City Intl	✓	✓	✓	✓	✓
National Airports						
St George	St George Municipal	✓	✓	✓	✓	✓
Wendover	Wendover	✓	✓	✓	✓	✓
Regional Airports						
Bountiful	Skypark	✓		✓	✓	✓
Brigham City	Brigham City Municipal	✓	✓	✓	R	✓
Cedar City	Cedar City Regional	✓	✓	✓	✓	✓
Heber	Heber City Muni	✓	✓	✓	✓	✓
Hurricane	Hurricane	R		✓	R	✓
Kanab	Kanab Municipal	✓	✓	✓	R	✓
Logan	Logan-Cache	✓	✓	✓	✓	✓
Moab	Moab-Canyonlands Field	✓	✓	✓	✓	✓
Morgan	Morgan County			R	R	R
Nephi	Nephi Municipal	✓	R	✓	R	✓
Ogden	Ogden-Hinckley Municipal	✓	✓	✓	✓	✓
Price	Price-Carbon County	✓	✓	✓	R	✓
Provo	Provo Municipal	✓	✓	✓	✓	✓
Richfield	Richfield Municipal	✓	✓	✓	✓	✓
Salt Lake City	Salt Lake City Muni 2	✓	✓	✓	✓	✓
Spanish Fork	Spanish Fork-Springville	✓	R	✓	✓	✓
Tooele	Tooele Valley Airport	✓	✓	R	R	R
Vernal	Vernal	✓	✓	✓	✓	✓
Community Airports						
Beaver	Beaver Municipal	✓	R		R	R
Blanding	Blanding Municipal	✓	✓	✓	R	✓
Bryce Canyon	Bryce Canyon	✓	R	✓	✓	✓
Delta	Delta Municipal	✓	✓		R	✓
Eagle Mountain	Jake Garn	R	R		R	R
Escalante	Escalante Municipal	✓	R		R	✓
Fillmore	Fillmore	✓	R		R	✓
Green River	Green River	✓	R	✓	R	✓
Manti	Manti-Ephraim	✓	R		R	✓

Table 6-6, Continued
Airports Meeting Requirements to Support VLJ Operations

		> 4,000' Runway Length	Instrument Approach Procedure	Jet A Fuel	Rental\Courtesy Cars	Terminal\Pilots Lounge
Associated City	Airport					
Community Airports						
Milford	Milford Municipal	✓	✓	✓	R	✓
Monticello	Monticello	✓	R	✓	R	✓
Panguitch	Panguitch Municipal	✓	R		R	R
Parowan	Parowan	✓	R	✓	R	✓
Roosevelt	Roosevelt Municipal	✓	✓	✓	R	✓
Local Airports						
Bluff	Bluff Airport					R
Duchesne	Duchesne Municipal	✓	✓			✓
Dutch John	Dutch John	✓				R
Glen Canyon Natl. Rec. Area	Bullfrog Basin	✓				R
Halls Crossing	Halls Crossing	✓		✓		✓
Hanksville	Hanksville	✓				R
Huntington	Huntington Municipal	✓	✓			✓
Junction	Junction	✓				R
Loa	Wayne Wonderland	✓				R
Manila	Manila	✓				R
Mount Pleasant	Mount Pleasant	✓				R
Salina	Salina-Gunnison					R
✓ - Meets Requirement R – UCASP Recommended Improvement						

Source: UDOA, Wilbur Smith Associates, 2007

Exhibit 6-7 Current and Future VLJ Airport Population Coverage



Source: US Census 2003, Wilbur Smith Associates

Percent of state employment within 30-minute drive time of a system airport

Due to the correlation that exists between employment and demand for aviation services, it is important that Utah's workforce have easy access to airports providing scheduled commercial air service. Facilities and services necessary to accommodate business class aircraft are also important, including longer runway lengths, jet fuel, and an instrument approach. Analysis completed in Chapter Five showed that 97 percent of the state's employment is within a 30-minute drive time of a GA Regional or higher category airport. This level of coverage is considered excellent. This percentage is anticipated to increase in the future as employment growth in the state is expected to primarily occur in areas with existing airport coverage.

Businesses with a propensity to use aviation within a 30-minute drive time of a system airport

Analysis in Chapter Five identified a total 1,482 businesses in Utah having a propensity to use aviation facilities and services. Among these businesses, 98 percent are located within a 30-minute drive time of an airport in the GA Regional or higher category. Similar to employment, this level of coverage is projected to increase in the future as new business are most likely to locate in areas with existing airport coverage.

GOAL CATEGORY: FACILITIES AND ACCESSIBILITY

Facility and service objectives have been established with the purpose of providing a standard for adequate airside and landside facilities and aviation services. These objectives represent facilities and services which should ideally be available at system airports, and are determined according to the role assigned to each system airport. These facility and service objectives are intended as guidelines for future system development, as well as individual airport master planning studies. Air accessibility is also an important factor used to measure system performance. Air accessibility is influenced by factors such as the airport's type of approach (precision, non-precision, or visual), and the presence, or lack thereof, of on-site weather-reporting equipment.

Percent of population within a 30-minute drive time of an airport with an instrument approach procedure

Airports with precision or non-precision instrument approaches allow aircraft to safely approach a runway during reduced visibility conditions. Electronic guidance is provided to the aircraft in accordance with an established procedure. **Table 6-7** identifies system airports that currently have an instrument approach and system airport where an instrument approach is recommended. **Exhibit 6-8** shows that currently 97.5 percent of the state's population is within 30 nautical miles of an airport with an instrument approach procedure. This coverage is projected to increase to over 99 percent of the state's population with the implementation of recommended instrument approach procedures. Due to surrounding terrain and development, instrument approach procedures are not recommended at the Hurricane and Morgan airports. Due to

potential airspace conflicts with Salt Lake City International an instrument approach procedure is not recommended for the Skypark Airport.

Table 6-7
Future Instrument Approach Analysis

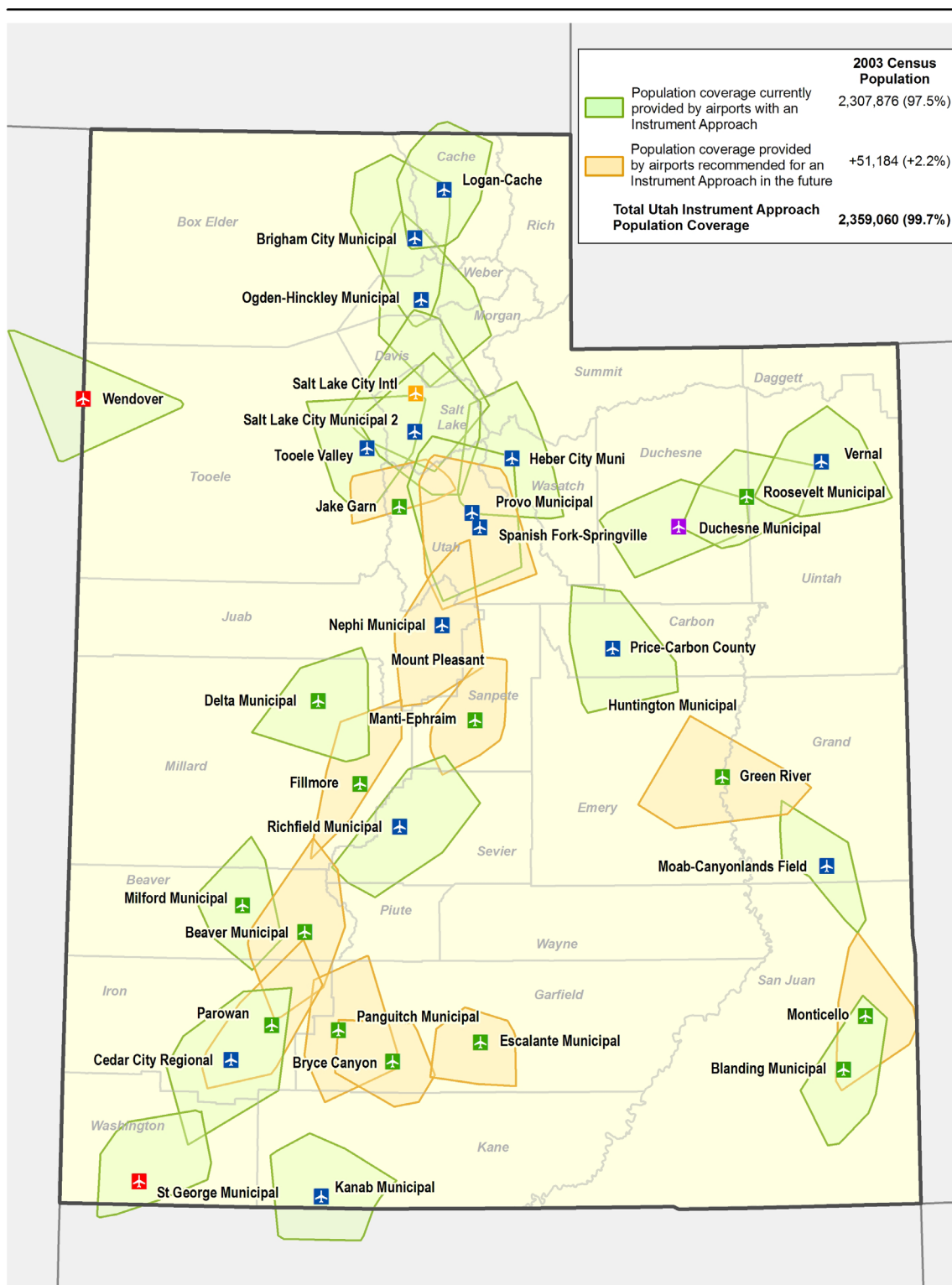
Associated City	Airport	Instrument Approach Procedure
International Airports		
Salt Lake City	Salt Lake City Intl	✓
National Airports		
St George	St George Municipal	✓
Wendover	Wendover	✓
Regional Airports		
Bountiful	Skypark	
Brigham City	Brigham City Municipal	✓
Cedar City	Cedar City Regional	✓
Heber	Heber City Muni	✓
Hurricane	Hurricane	
Kanab	Kanab Municipal	✓
Logan	Logan-Cache	✓
Moab	Moab-Canyonlands Field	✓
Morgan	Morgan County	
Nephi	Nephi Municipal	R
Ogden	Ogden-Hinckley Municipal	✓
Price	Price-Carbon County	✓
Provo	Provo Municipal	✓
Richfield	Richfield Municipal	✓
Salt Lake City	Salt Lake City Muni 2	✓
Spanish Fork	Spanish Fork-Springville	R
Tooele	Tooele Valley Airport	✓
Vernal	Vernal	✓
Community Airports		
Beaver	Beaver Municipal	R
Blanding	Blanding Municipal	✓
Bryce Canyon	Bryce Canyon	R
Delta	Delta Municipal	✓
Eagle Mountain	Jake Garn	R
Escalante	Escalante Municipal	R
Fillmore	Fillmore	R
Green River	Green River	R
Manti	Manti-Ephraim	R
Milford	Milford Municipal	✓
Monticello	Monticello	R
Panguitch	Panguitch Municipal	R
Parowan	Parowan	R
Roosevelt	Roosevelt Municipal	✓

**Table 6-7, Continued
Future Instrument Approach Analysis**

Associated City	Airport	Instrument Approach Procedure
Local Airports		
Bluff	Bluff Airport	
Duchesne	Duchesne Municipal	✓
Dutch John	Dutch John	
Glen Canyon Natl. Rec. Area	Bullfrog Basin	
Halls Crossing	Halls Crossing	
Hanksville	Hanksville	
Huntington	Huntington Municipal	✓
Junction	Junction	
Loa	Wayne Wonderland	
Manila	Manila	
Mount Pleasant	Mount Pleasant	
Salina	Salina-Gunnison	
✓ - Airport has a published instrument approach R - Instrument approach recommended		

Source: UDOA, Wilbur Smith Associates, 2007

Exhibit 6-8 Current and Future Instrument Approach Population Coverage



Source: US Census 2003, Wilbur Smith Associates

Percent of population and land area within a 30-minute drive time of each Utah airport role category

Analysis in Chapter Five identified that the existing coverage by each airport role category is sufficient. The population coverage provided by airports in the GA Regional or higher classification is excellent at 96.5 percent. Limited additional population coverage is provided by airports in the lower role categories. These airports provide access to more remote areas of the state. Due to the high level of coverage provided by system airports, the primary goal should be to improve the airports in each category to meet identified facility and service objectives.

Percent of population and land area within a 30-minute drive time of an airport included in the FAA's National Plan of Integrated Airport Systems (NPIAS)

The National Plan of Integrated Airport System (2007-2011) indicates that 98 percent of the U.S. population lives within 20 miles of one of the 3,431 airports included in the NPIAS. Analysis conducted in Chapter Five identified that Utah currently has 34 airports in the NPIAS providing coverage within a 30-minute drive time to 99 percent of the state's population. While it is not feasible to provide a NPIAS airport within a 30-minute drive of every Utah resident, it is possible that additional airports in Utah are significant to the national transportation system and should be included in the NPIAS.

There are several justifications for an airport to be included in the NPIAS. An existing airport that is included in an accepted state or metropolitan plan must have at least 10 based aircraft, and serve a community located within a 30-minute drive time. An existing or proposed airport not meeting the criteria above may be included in the NPIAS if all of the following criteria are met:

- It is included in an accepted state or metropolitan airport system plan
- It serves a community more than 30 minutes driving time from the nearest existing or proposed NPIAS airport
- It is forecast to have 10 based aircraft within five years
- There is an eligible sponsor willing to undertake the ownership of development of the airport

Additionally an airport not meeting the above criteria may still be included in the NPIAS based on a special justification. The justification must show that there is a significant national interest in the airport. Examples of special justifications include:

- A determination that the benefits of the airport will exceed its development costs
- Written documentation describing isolation
- Airports serving the needs of Native American communities
- Airports needed to support recreational areas
- Airports needed to develop or protect important national resources

Washington County is projected to be the fastest growing county in Utah in terms of population. This growth has prompted the construction of the new St. George Airport to meet the demands of this rapidly growing community. The Hurricane Airport, located in Washington County, also serves the needs of this area but is not currently included in the NPIAS. The Hurricane Airport has activity levels that exceed NPIAS inclusion criteria, and provides convenient access to significant recreational areas including Zion National Park. The UCASP recommends that this airport be included in the NPIAS.

Percent of registered pilots within a 30-minute drive time of a system airport

Analysis completed in Chapter Five revealed that among the state's 7,076 registered pilots only three live outside of the 30-minute system airport drive time boundaries. This excellent level of coverage is likely to improve over time as new pilots are most likely to reside in areas of existing airport coverage.

Percent of system airports meeting facility and service objectives

The previous chapter of the UCASP analyzed the ability of the system to meet minimum facility and service objectives established for each airport role. This analysis examined each airport's ability to meet current demand for airside facilities such as runway length, taxiways, and navigational aids (NAVAIDs), as well as landside facilities including aircraft storage, automobile parking, and terminal/pilots lounge based on their role's associated facility and service objectives.

Since airports in the system serve different roles, their need to provide facilities in each of these objective categories also varies. An objective has been established to have all system airports be 100 percent compliant with future facility and service objectives for their respective system roles. It should be noted that this is only an objective, and that some airports may not have the ability to fully meet the objectives due to constraints that are both physical and economical. However, it is recommended that all airports strive to meet these objectives when and if possible.

Future Airport Reference Code (ARC) analysis

Each airport's ability to meet its applicable FAA design standards is primarily a function of the master planning process, rather than the system planning process. To assess the performance of the Utah Airport System, it was nevertheless important to evaluate the ability of the airports and the system to meet basic design standards. A target of 94 percent has been set for system airports to meet their Airport Reference Code (ARC) objective. As identified in Chapter Five, 70 percent of all system airports now meet identified ARC objectives. **Table 6-8** provides information by airport role on which facilities fall short of their ARC objective.

**Table 6-8
Future ARC Objective**

Associated City	Airport	Existing ARC	ARC Objective
National			
St George**	St George Municipal	B-II	C-III
Regional			
Bountiful*	Skypark	B-I	C-II
Brigham City	Brigham City Municipal	B-II	C-II
Heber	Heber City Municipal	B-II	C-II
Hurricane*	Hurricane	B-I	C-II
Kanab	Kanab Municipal	B-II	C-II
Moab	Moab-Canyonlands Field	B-II	C-II
Morgan*	Morgan County	B-I	C-II
Richfield	Richfield Municipal	B-II	C-II
Salt Lake City	Salt Lake City Muni 2	B-II	C-II
Spanish Fork	Spanish Fork-Springville	B-II	C-II
Tooele	Tooele Valley Airport	B-II	C-II
Vernal	Vernal	B-II	C-II
Community			
Eagle Mountain	Jake Garn	A-I	B-II

* ARC upgrade not recommended

** Deficiency addressed with new airport

Source: UDOA, Wilbur Smith Associates, 2007

It is recommended that all airports with the exception of Skypark, Hurricane and Morgan, strive to meet the requirements associated with the recommended ARC objective. This would require the airports to meet all runway/taxiway separations and secure the associated safety areas in and around the runway system in order to meet standards. Projects to upgrade the ARC of the Skypark, Hurricane and Morgan airports are not recommended due to surrounding terrain and development which make upgrading of these airports impractical.

Future runway length analysis

From an airport system planning standpoint it is desirable to have 100 percent of all system airports meet their respective primary runway length objective. However at some system airports, a runway extension is currently unneeded or not practical. The current runway length of 8,000 feet at the Wendover has been determined to be adequate for current and projected operations. Additionally, runway extensions to meet identified objectives at the Skypark, Hurricane and Morgan airports are not practical due to surrounding terrain and/or development. Currently, 64 percent of the system airports comply with the primary runway length objective. With recommended improvements 91 percent of system airports will meet recommended runway length objectives. It should be noted that the objective for GA Local airports only recommends that airports maintain their existing facilities. The original runway length objectives are suitable for future performance and change is not recommended. Additionally, any runway extension

would require justification, proper environmental documentation, and securing of all associated safety areas in order to be eligible for state and/or FAA funding. As a result, airports may not be able to implement some of the recommendations in this section due to environmental and/or man-made constraints that limit the development of airport runways.

Table 6-9 lists the airports that do not currently meet minimum runway length objective for their role and the runway length deficiency.

**Table 6-9
Future Runway Length Objective Analysis**

Associated City	Airport	Existing Primary Runway Length (in feet)	Recommended FAA Runway Length (in feet)*	Deficiency (in feet)
National 75% of large aircraft @ 90% useful load				
St George**	St George Municipal	6,606	8,600	1,994
Wendover	Wendover	8,000	8,600	600
Regional 75% of large aircraft @ 60% useful load				
Bountiful*	Skypark	4,700	6,220	1,520
Heber	Heber City Municipal	6,898	6,960	62
Hurricane*	Hurricane	3,410	6,110	2,700
Kanab	Kanab Municipal	6,193	6,600	407
Morgan*	Morgan County	3,904	6,640	2,736
Nephi	Nephi Municipal	6,300	6,840	540
Richfield	Richfield Municipal	6,600	6,800	200
Salt Lake City	Salt Lake City Muni 2	5,860	6,540	680
Spanish Fork	Spanish Fork-Springville	5,700	6,530	830
Tooele	Tooele Valley Airport	6,100	6,510	410
Vernal	Vernal	6,201	6,790	589
Community 75% of small aircraft				
Eagle Mountain	Jake Garn	2,500	4,620	2,120
Manti	Manti-Ephraim	4,584	4,790	206
Monticello	Monticello	4,817	6,030	1,213
Panguitch	Panguitch Municipal	5,700	5,730	30
Parowan***	Parowan	5,000	5,130	130

*Runway Extension Not Recommended

** Deficiency addressed with new airport

Source: UDOA, Wilbur Smith Associates, 2007

Future runway width analysis

The target performance set for this benchmark is to have 97 percent of all system airports meet their respective runway width objectives. Currently, 91 percent of all system airports currently comply with their runway width objectives.

Table 6-10 shows the airports that do not meet their runway width objectives and their deficiencies. Widening of the Morgan airport runway is not recommended due the inability of the airport to meet the majority of FAA runway and taxiway design standards.

**Table 6-10
Future Runway Width Objective Analysis**

Associated City	Airport	Current Width	Objective Width	Deficiency
Regional				
Hurricane	Hurricane	40'	75'	25'
Morgan*	Morgan County	50'	75'	15'
Community				
Eagle Mountain	Jake Garn	50'	75'	25'
Escalante	Escalante Municipal	60'	75'	15'

*Runway widening not recommended

Source: UDOA, Wilbur Smith Associates, 2007

Future runway strength analysis

Pavement strength requirements are typically identified during a master planning process and are determined through an analysis of existing and projected aircraft operation types and frequencies. For system planning purposes, pavement strength is presented in general terms and is tied to the airport role. Pavement strength defines the ability of a pavement section to handle recurring loads at specified weights. A pavement section can typically handle infrequent loading beyond the specified strength, while frequent loading beyond the specified strength can cause premature pavement failure. The following details the pavement strength objectives identified for each airport role:

- National – 60,000# Single Wheel Gear(SWG)
- GA Regional – 30,000# SWG
- GA Community – 12,500# SWG
- GA Local – 12,500# SWG

Table 6-11 shows the runway strength deficiencies at the airports that do not meet their recommended objective. It should be noted that current strength of each airport's runway is sufficient for the majority of existing users. However, as business jet activity increases as projected, some airports are likely to receive operations from aircraft heavier than the existing airport runways were designed to accommodate. Seventy-two percent of Utah's system airports currently meet runway strength objectives. The recommended strengths for each role have been determined to be sufficient for future activity. A target has been set for 94 percent of all system airports to meet the identified strength objective for their role. Runway strengthening projects are not recommended at the Skypark and Morgan airports since they are unable to be upgraded to accommodate

larger aircraft requiring increased pavement strength. It is recommended that the Hurricane airport runway be upgraded to 12,500# SWG rather than 30,000# SWG for similar reasons.

Table 6-11
Future Runway Strength Objective Analysis

Associated City	Airport	Current Strength (in 000s)*	Strength Objective (in 000s)*	Deficiency (in 000s)*
National				
St George**	St George Municipal	26	60	34
Regional				
Bountiful*	Skypark	12	30	18
Heber	Heber City Municipal	12	30	18
Hurricane	Hurricane	3	12.5	9.5
Kanab	Kanab Municipal	12.5	30	17.5
Moab	Moab-Canyonlands Field	25	30	5
Morgan*	Morgan County	12.5	30	17.5
Richfield	Richfield Municipal	19	30	11
Salt Lake City	Salt Lake City Muni 2	12.5	30	17.5
Spanish Fork	Spanish Fork-Springville	12.5	30	17.5
Community				
Eagle Mountain	Jake Garn	4	12.5	8.5
Green River*	Green River	12	12.5	0.5
Monticello	Monticello	11	12.5	1.5
Local				
Salina	Salina-Gunnison	6	12.5	6.5
Pavement Strength Rating Based on Single Wheel Gear (SWG)				

*Runway strength upgrade not recommended

** Deficiency addressed with new airport

Source: UDOA, Wilbur Smith Associates, 2007

Future taxiway analysis

Taxiway objectives for each airport role category were established to accommodate the level and type of aircraft operations typically occurring at airports within each role. Seventy-eight percent of the system airports in Utah currently meet the identified taxiway objectives. A target objective has been set for 98 percent of system airports meet their taxiway type objectives for their respective roles with recommended improvements. A taxiway upgrade is not recommended for the Morgan airport due to the inability of the airport to meet the majority of FAA runway and taxiway design standards. **Table 6-12** identifies airports not currently meeting future taxiway objectives for their respective role. Also shown is the future taxiway objective for each airport.

**Table 6-12
Future Taxiway Objective Analysis**

Associated City	Airport	Current Taxiway	Taxiway Objective
National			
Wendover	Wendover	Partial Parallel	Full Parallel
Regional			
Hurricane	Hurricane	Turnarounds and Connector	Partial Parallel
Kanab	Kanab Municipal	Turnarounds and Connector	Partial Parallel
Morgan*	Morgan County	Turnarounds and Connector	Partial Parallel
Richfield	Richfield Municipal	Turnarounds and Connector	Partial Parallel
Community			
Eagle Mountain	Jake Garn	Connector	Turnarounds & Connector
Escalante	Escalante Municipal	Connector	Turnarounds & Connector
Manti	Manti-Ephraim	Connector	Turnarounds & Connector
Milford	Milford Municipal	Connector	Turnarounds & Connector

* Taxiway Upgrade Not Recommended

Source: UDOA, Wilbur Smith Associates, 2007

Future approach analysis

As mentioned earlier in this chapter and in Chapter Five, system airports were evaluated based on the type of approach available at the airport.

Table 6-13 depicts the type of approach available at airports that do not meet their role's objective in addition to the recommended instrument approach objective based on each airport's identified role.

Although it is desirable that the 100 percent target be met for all facility and service objectives, factors such as terrain and approach path obstructions limit the ability of certain airports to meet their recommended approach objectives. Currently 47 percent of system airports meet recommended instrument approach criteria. With recommended improvements 88 percent of system airports will meet recommended instrument approach objectives. Upgraded approach procedures are not recommended at Skypark, Morgan and Hurricane airports due to surrounding airspace conflicts or terrain restrictions.

Table 6-13
Future Approach Objective Analysis

Associated City	Airport	Current Approach	Approach Objective
National			
St George**	St George Municipal	Non-Precision Straight-In	Precision
Wendover	Wendover	Non-Precision Straight-In	Precision
Regional			
Bountiful*	Skypark	Visual	Non-Precision Straight-In
Heber	Heber City Municipal	Non-Precision Circling	Non-Precision Straight-In
Hurricane*	Hurricane	Visual	Non-Precision Straight-In
Morgan*	Morgan County	Visual	Non-Precision Straight-In
Nephi	Nephi Municipal	Visual	Non-Precision Straight-In
Spanish Fork	Spanish Fork-Springville	Visual	Non-Precision Straight-In
Community			
Beaver	Beaver Municipal	Visual	Non-Precision
Bryce Canyon	Bryce Canyon	Visual	Non-Precision
Eagle Mountain	Jake Garn	Visual	Non-Precision
Escalante	Escalante Municipal	Visual	Non-Precision
Fillmore	Fillmore	Visual	Non-Precision
Green River	Green River	Visual	Non-Precision
Manti	Manti-Ephraim	Visual	Non-Precision
Monticello	Monticello	Visual	Non-Precision
Panguitch	Panguitch Municipal	Visual	Non-Precision
Parowan	Parowan	Visual	Non-Precision

* Approach upgrade not recommended

** Deficiency addressed with new airport

Source: Wilbur Smith Associates, 2007

Instrument Landing Systems (ILS) have traditionally provided precision instrument approach capabilities at airports. These land-based facilities are often subject to interference with terrain, which make them either costly to install and maintain or prohibits their use altogether. The FAA has developed a plan for an extensive national airspace (NAS) modernization program with Global Positioning System (GPS) as the core technology. GPS is a space-based satellite navigation system free from terrain interference. These systems are significantly less costly to maintain than conventional land-based facilities. GPS is the basis of Wide Area Augmentation System (WAAS), an Approach Procedure with Vertical Guidance (APV). This relatively new category of instrument approaches includes the WAAS approach technology, Lateral Precision with Vertical Guidance (LPV). LPV has been operational since 2003, and currently provides precision approach accuracy with Category I descent minimums (200 feet above the surface).

Although LPV approaches are not true precision approaches, they provide near precision capabilities when landing an aircraft. The only downside to this system is that aircraft will be required to have the appropriate equipment installed to utilize the approach, which can be costly to the aircraft owner.

The FAA is also developing the Global Navigation Satellite System Landing System (GLS). GLS, which is programmed to come online by 2013, will provide Category II and III approach minimums to more runways in the U.S. than are currently available from traditional ILS technology.

Future visual aid analysis

Each airport's ability to meet the visual aid objective was identified in Appendix C. Currently 62 percent of system airports in Utah meet their visual aid objectives. With recommended improvements 94 percent of system airports will meet the visual aid objective. Those airports that do not currently meet their objectives are listed in **Table 6-14**, with their deficiencies. Upgraded visual aids are not recommended for the Hurricane and Morgan airports due to hazards created by terrain and the absence of runway lighting. These limitations prevent these airports from safely accommodating night-time operations.

Table 6-14
Future Airport Visual Aid Objective Analysis

Associated City	Airport	Visual Aid Needed
National		
St George**	St George Municipal	MALSR
Wendover	Wendover	MALSR
Regional		
Heber	Heber City Municipal	REILs
Hurricane*	Hurricane	GVGIs and REILs
Kanab	Kanab Municipal	REILs
Morgan*	Morgan County	GVGIs and REILs
Richfield	Richfield Municipal	REILs
Spanish Fork	Spanish Fork-Springville	REILs
Community		
Eagle Mountain	Jake Garn	GVGIs and REILs
Escalante	Escalante Municipal	GVGIs and REILs
Manti	Manti-Ephraim	REILs
Monticello	Monticello	REILs
Panguitch	Panguitch Municipal	REILs
MALSR - Medium-Intensity Approach Lighting System with Runway Alignment Indicator, GVGIs - Generic Visual Glideslope Indicators, REILs - Runway End Identifies Lights		

*Visual aid upgrade not recommended

** Deficiency addressed with new airport

Source: UDOA, Wilbur Smith Associates, 2007

Future lighting analysis

Runway and edge lights and rotating beacons provide guidance and visibility to pilots during periods of darkness or restricted visibility conditions. Currently 83 percent of system airports in Utah were found to meet the study's lighting objectives. With recommended improvements 96 percent of system airports will meet this development benchmark. Lighting upgrades are not recommended for the Hurricane and Morgan airports due to hazards created by surrounding terrain preventing these airports from safely accommodating night-time operations.

Table 6-15 indicates which airports currently do not meet their respective lighting objectives. Also shown are potential runway and taxiway lighting projects needed to meet identified objectives.

Table 6-15
Future Lighting Objective Analysis

Associated City	Airport	Current Lighting	Lighting Objective
Regional			
Bountiful	Skypark	LIRL	Upgrade to MIRL
Hurricane*	Hurricane	None	Install MIRL & Beacon
Morgan*	Morgan	None	Install MIRL & Beacon
Community			
Eagle Mountain	Jake Garn	None	Install MIRL & Beacon
Local			
Bluff	Bluff Airport	None	Install LIRL or Reflectors & Beacon
Dutch John	Dutch John	None	Install LIRL or Reflectors & Beacon
Glen Canyon Natl. Rec. Area	Bullfrog Basin	None	Install LIRL or Reflectors & Beacon
Junction	Junction	None	Install LIRL or Reflectors & Beacon
LIRL – Low Intensity Runway Lighting, MIRL – Medium Intensity Runway Lighting			

Lighting Upgrade Not Recommended

Source: UDOA, Wilbur Smith Associates, 2007

Future weather reporting analysis

On-site weather reporting equipment is a requirement at most airports to have an instrument approach procedure. Additionally automated weather reporting systems promote an increased safety margin during periods of inclement or changing weather. For this objective, all airport roles except GA Local have an objective to have automated weather reporting, either through an automated surface observing system (ASOS) or an automated weather observing system (AWOS).

Table 6-16 indicates which airports, by role, do not meet the weather reporting objectives and potential weather reporting projects recommended to meet future target objectives. Currently 71 percent of system airports meet the weather reporting objective. With recommended improvements 90 percent of system airports will meet the weather reporting objective. Weather reporting equipment is not recommended for the Skypark, or Morgan airports since neither airport currently has the ability to accommodate an instrument approach procedure.

Table 6-16
Future Weather Reporting Objective Analysis

Associated City	Airport	Current Weather Reporting	Weather Reporting Objective
Regional			
Bountiful*	Skypark	None	ASOS or AWOS
Hurricane*	Hurricane	None	ASOS or AWOS
Morgan*	Morgan County	None	ASOS or AWOS
Nephi	Nephi Municipal	None	ASOS or AWOS
Spanish Fork	Spanish Fork-Springville	None	ASOS or AWOS
Community			
Eagle Mountain	Jake Garn	None	ASOS or AWOS
Escalante	Escalante Municipal	None	ASOS or AWOS
Green River	Green River	None	ASOS or AWOS
Manti	Manti-Ephraim	None	ASOS or AWOS
Parowan	Parowan	None	ASOS or AWOS

*Weather Reporting Not Recommended

Source: UDOA, Wilbur Smith Associates, 2007

Future landside services

Airport services which are available to both local and transient pilots are often expected necessities, particularly at larger airports. Various levels and types of services have been identified for each airport role category based on the type of aircraft operations typically occurring at these airports. These services include public telephones, restrooms, Fixed Base Operator (FBO), aircraft maintenance, hangar storage, and ground transportation.

Table 6-17 identifies the recommended services that are not currently being provided at system airports. It is recommended that all airports strive to provide the recommended services in order for the airport to provide its maximum utility and benefit.

Table 6-17
Future Landside Services Objective Analysis

Associated City	Airport	Recommended Landside Service
National		
Wendover	Wendover	Rental Cars
Regional		
Hurricane	Hurricane	Public Telephone, Courtesy Car
Morgan	Morgan County	Public Telephone, Restrooms, Aircraft Maintenance, Courtesy Car
Nephi	Nephi Municipal	Aircraft Maintenance, Courtesy Car
Tooele	Tooele Valley Airport	Limited Service FBO, Aircraft Maintenance, Courtesy Car
Community		
Beaver	Beaver Municipal	Restrooms, Limited Service FBO, Courtesy Car
Delta	Delta Municipal	Limited Service FBO, Courtesy Car
Eagle Mountain	Jake Garn	Public Telephone, Restrooms, Limited Service FBO, Courtesy Car
Escalante	Escalante Municipal	Limited Service FBO, Courtesy Car
Fillmore	Fillmore	Courtesy Car
Green River	Green River	Courtesy Car
Manti	Manti-Ephraim	Limited Service FBO, Courtesy Car
Milford	Milford Municipal	Courtesy Car
Panguitch	Panguitch Municipal	Limited Service FBO, Courtesy Car
Parowan	Parowan	Public Telephone
Roosevelt	Roosevelt Municipal	Courtesy Car
Local		
Bluff	Bluff Airport	Public Telephone, Restrooms
Dutch John	Dutch John	Public Telephone, Restrooms
Glen Canyon Natl. Rec. Area	Bullfrog Basin	Public Telephone
Huntington	Huntington Municipal	Public Telephone
Junction	Junction	Public Telephone, Restrooms
Loa	Wayne Wonderland	Restrooms
Manila	Manila	Public Telephone, Restrooms
Mount Pleasant	Mount Pleasant	Restrooms
Salina	Salina-Gunnison	Public Telephone

Source: UDOA, Wilbur Smith Associates, 2007

Future landside facilities

Landside facilities are important infrastructure elements of system airports. Terminal buildings are typically seen as both an airport's and community's "welcome center" when people travel to an area by aircraft. General aviation terminals at many airports house the FBO, a pilots' lounge, and a weather information area. Other important facilities include: short term hangar space, apron and tie-down space, perimeter fencing and security gates.

The following hangar space objectives were established for the four airport roles:

- National – 75 percent of based aircraft plus 25 percent of transient overnight aircraft
- GA Regional – 60 percent of based aircraft plus 25 percent of transient overnight aircraft
- GA Community – 50 percent of based aircraft plus 25 percent of transient overnight aircraft
- GA Local – Maintain existing facilities

The following apron and tie-down space objective were established for the four airport roles:

- National – 25 percent of based aircraft plus 75 percent of transient overnight aircraft
- GA Regional – 40 percent of based aircraft plus 50 percent of transient overnight aircraft
- GA Community – 50 percent of based aircraft plus 25 percent of transient overnight aircraft
- GA Local – Maintain existing facilities

Full perimeter security or wildlife fencing was determined to be necessary at all system airports. **Table 6-18** identifies recommended landside facilities that are not currently being provided or have been determined to be inadequate at system airports. Details regarding the each recommended landside facilities are identified on the individual airport summary sheets included as an appendix to the study.

Table 6-18
Future Landside Facilities Objective Analysis

Associated City	Airport	Recommended Landside Facilities
National		
St George*	St George Municipal	Tie-downs
Regional		
Bountiful	Skypark	Tie-downs, Security Gates
Brigham City	Brigham City Municipal	Tie-downs, Auto Parking
Heber	Heber City Municipal	Tie-downs, Auto Parking
Hurricane	Hurricane	Tie-downs, Auto Parking
Logan	Logan-Cache	Tie-downs
Moab	Moab-Canyonlands Field	Hangars, Full Perimeter Fencing
Morgan	Morgan County	Tie-downs, Auto Parking, Hangars, Full Perimeter Fencing
Nephi	Nephi Municipal	Auto Parking
Price	Price-Carbon County	Hangars, Full Perimeter Fencing
Spanish Fork	Spanish Fork-Springville	Tie-downs, Auto Parking, Full Perimeter Fencing
Tooele	Tooele Valley Airport	Terminal, Hangars

* Deficiency addressed with new airport

Table 6-18, Continued
Future Landside Facilities Objective Analysis

Associated City	Airport	Recommended Landside Facilities
Community		
Beaver	Beaver Municipal	Pilots Lounge, Auto Parking, Full Perimeter Fencing
Blanding	Blanding Municipal	Full Perimeter Fencing
Bryce Canyon	Bryce Canyon	Hangars
Delta	Delta Municipal	Security Gates
Eagle Mountain	Jake Garn	Pilots Lounge, Hangars Tie-downs, Auto Parking, Full Perimeter Fencing
Fillmore	Fillmore	Auto Parking, Full Perimeter Fencing
Green River	Green River	Hangars, Full Perimeter Fencing
Manti	Manti-Ephraim	Auto Parking
Monticello	Monticello	Full Perimeter Fencing
Panguitch	Panguitch Municipal	Pilots Lounge
Parowan	Parowan	Auto Parking, Security Gates
Roosevelt	Roosevelt Municipal	Auto Parking, Security Gates
Local		
Bluff	Bluff Airport	Pilots Lounge, Security Gates
Duchesne	Duchesne Municipal	Security Gates
Dutch John	Dutch John	Upgrade Fencing
Glen Canyon Natl. Rec. Area	Bullfrog Basin	Pilots Lounge, Security Gates
Halls Crossing	Halls Crossing	Full Perimeter Fencing
Hanksville	Hanksville	Pilots Lounge
Huntington	Huntington Municipal	Upgrade Fencing
Junction	Junction	Pilots Lounge, Full Perimeter Fencing
Loa	Wayne Wonderland	Pilots Lounge, Security Gates
Manila	Manila	Pilots Lounge, Upgrade Fencing
Mount Pleasant	Mount Pleasant	Pilots Lounge
Salina	Salina-Gunnison	Pilots Lounge, Full Perimeter Fencing

Source: UDOA, Wilbur Smith Associates, 2007

SUMMARY

The next chapter presents the financial needs of the recommended system, reviews the airport priority system, policy issues related to implementing recommendations, and specific action items for the stakeholders in the system.